

Clean, Safe Drinking Water [goal #1]

Greater Vancouver tap water is abundant and reliable. But it doesn't always meet federal and provincial standards for clean, safe drinking water.

The GVRD's *Drinking Water Management Plan* is introduced in our fact sheet titled "Managing Our Drinking Water". The Plan has three goals:

1. Provide clean, safe drinking water
2. Create water-efficient communities
3. Manage the water system to optimize its capacity

This fact sheet summarizes goal #1. The full plan document is available from the GVRD information centre, by calling 604-432-6200.

Meeting water-quality standards

We at the GVRD must comply with BC's *Drinking Water Protection Regulation*. We also intend to meet the standards of Health Canada's *Guidelines for Canadian Drinking Water Quality*. These regulations and guidelines are designed to protect health as well as to improve taste, odour, and appearance.

[INSERT DEFINITION OF CLEAN WATER - TO BE PROVIDED] The GVRD is concerned about potential waterborne disease. In addition to bacteria, possible contaminating microbes include *Giardia* and *Cryptosporidium*, parasites from animals that cause diarrhea and intestinal disorders. Corrosion of copper piping is an additional issue. Corrosion shortens plumbing life and can affect health and the environment.

Managing from source to tap

Our water supply system provides barriers to potential contamination at many different points. To meet standards, GVRD water-quality management is comprehensive and integrated all the way down the line. Regardless of the type of primary disinfection used at the water source, secondary disinfection with chlorine is always used to safe-guard the water as it makes its way through the system. The primary disinfectant at the Coquitlam source is *ozone*. Ozone is more effective than chlorine against *Giardia*, but breaks down too fast to use as a secondary disinfectant. The Plan describes how we're acting to improve our drinking water system, as follows.

Protecting the water source

The *Watershed Management Plan* commits us to using our three watersheds to provide clean, safe water, above all else. It also commits us to environmental stewardship, intervening as little as possible. Areas disturbed by human activity will be returned to their natural state. All decision making is open to the public.

Completing the Seymour-Capilano Filtration Project

In 2002 the GVRD Board approved expanding the planned Seymour Filtration Plant to also filter water from the Capilano reservoir. Water will be transferred between Capilano

and Seymour reservoirs through wide tunnels, seven kilometres long. Construction is underway. The twin tunnels and facilities are scheduled to be built by 2008.

The Seymour Filtration Plant will reduce turbidity of the water. Turbidity is a measure of the cloudiness of the water. The cloudiness is caused mainly by erosion from the steep slopes of our mountains. Turbidity is a water quality issue because the particles that increase turbidity can shield microbes from disinfectants. Filtration uses material such as coal or sand to remove soil, plant matter, and silt. It removes *Giardia* and *Cryptosporidium*, reduces the need for chlorine, and reduces unwanted taste, colour, and odours.

After filtration, ultraviolet lights at the Filtration Plant will kill any harmful microbes that might get through the filter. Corrosion will also be reduced by treating the water here to lower its acidity. Some chlorine must still be added, as usual, to preserve the water quality as it's distributed.

Monitoring to optimize protection

Treated water is monitored daily in the GVRD's transmission mains and reservoirs, and in the municipal distribution systems. Monitoring shows the effectiveness of disinfection and corrosion control. The monitoring information is used to calculate the amount of rechlorination needed, to evaluate watershed controls, and to optimize operation of the GVRD system. The GVRD will also work with municipalities to establish similar monitoring in the municipal system, and at the tap.

Maintaining pipes and reservoirs

The GVRD and municipalities work together to implement programs of inspection, repairs, upgrades, flushing, and cleaning. Flushing and cleaning remove accumulated sediments and microbial growth in water mains and reservoirs.

Fine-tuning the new contamination barriers

Optimizing secondary disinfection for Seymour-Capilano

The Seymour-Capilano Filtration Plant will change the characteristics of this water. The optimal amount of chlorine we'll need to add will be determined from monitoring the water.

Re-evaluating treatment for *Cryptosporidium* at Coquitlam

We've found that ozone is only partly effective against *Cryptosporidium*. This issue must be addressed for the Coquitlam treatment system, taking into account other risks.

Securing additional water supplies

Facilities upgrades will increase capacity for the near future, while additional water sources will ensure supply for the next hundred years and beyond.

Upgrading facilities to increase water capacity.

The Capilano pump station now being built will be in operation by 2007. It will increase supply capacity by being able to draw out more water from the Capilano Reservoir.

The new Seymour-Capilano combined system will be operating by 2008. It will increase our flexibility, and therefore our ability to supply water as needed.

A new Coquitlam intake will be built, starting around 2011.

Negotiating full access to Coquitlam reservoir water

BC Hydro has allocated the majority of the Coquitlam water to the GVRD. This expanded source should meet our needs for the next fifty years. After that, we will likely expand the storage capacity within the Seymour or Capilano watershed.

Many potential water sources were considered before coming to this decision. The full Drinking Water Management Plan, available at the GVRD information centre or online, contains an assessment of these sources and a description of the decision-making process. Choices were guided by the *Sustainable Region Initiative* (SRI), embracing environmental integrity, social well-being, and economic prosperity.

Considering the impact of climate change

Studies show that climate change could reduce water supply. The worst-case scenario is that additional water supplies might be required about ten years sooner. Climate change will be taken into account as part of our Adaptive Management process.

Contact information

[to be supplied]